Agenda, Discussion Topics, and Meeting Notes

Drought Early Warning Information System for Southern California

National Integrated Drought Information System (NIDIS) Pilot Activity

Wednesday, September 5, 2012
Spiess Hall Room 330
Scripps Institution of Oceanography, San Diego, CA
8:00 a.m. - 4:00 p.m.

Specialized Application

AGENDA

8:00 a.m. Continental breakfast

8:40 a.m. Welcome, introductions, meeting goals

8:50 a.m. Identifying applications: decision-makers, decisions, and information needed

10:00 a.m. Break

10:20 a.m. Specifying applications

11:30 p.m. Lunch (brought in)

12:30 p.m. Partnering decision-makers with information providers

2:00 p.m. Break

2:20 p.m. Partnering - continued

3:30 p.m. Next steps, action items

4:00 p.m. Adjourn

Drought Early Warning Information System for Southern California
National Integrated Drought Information System (NIDIS) Pilot Activity

Specialized Application
DISCUSSION TOPICS

1. Identifying applications: decision-makers, decisions, and information needed
   - What information would you like to have - but currently don't have - for making a drought decision?
   - What is that information? What is that decision?
   - How could better information lead to better decisions and reduced impacts and costs?

2. Specifying applications
   - Information needed
     - variable (e.g., precipitation, snowpack, streamflow, temperature, etc.)
     - calculation of variable (e.g., three-month anomaly, monthly average, etc.)
     - spatial scale (e.g., climate division, station, watershed, county, etc.)
     - temporal scale (e.g., summer months June-September, etc.)
   - Decision(s) that would use that information
     - lead time needed (e.g., need to know by April 1st for upcoming summer, etc.)
     - potential value and benefits of the information for decision-making

3. Partnering decision-makers with scientists/information providers
   - Participants
   - Determining process for providing and using information
   - Developing the information and products
     - who will do the work? resources?
     - what's needed - adapting existing information, developing new information?
   - Sustaining the partnership and provision/use of information

Drought Early Warning Information System for Southern California
National Integrated Drought Information System (NIDIS) Pilot Activity

Specialized Application
DISCUSSION TOPICS

From previous meetings - ideas for applications

From May 10, 2012 meeting:
Tom Kennedy (Olivenhain Municipal Water District): Need information on whether the drought is getting worse, which could influence capital investment decisions.
Sandy Kerl (San Diego County Water Authority): Need to know the severity and frequency of naturally occurring precipitation events, which could influence decisions regarding paying for more reliability (e.g., more pipes, deals, emergency storage). Forecasts needed would be winter month precipitation.
Jeanine Jones (California Department of Water Resources): Need to know, for the period from Oct/Nov through May, about what areas of the state will have precipitation below 50%. Need precipitation forecasts with updates every 30 days. Decisions would involve assistance to small water systems.
Michael Garrod (Sweetwater Authority): Need to know by the end of December (60-90 days in advance) about whether blocking high is going to move, because water is transferred in January. Decision is whether to release as much water, if the blocking high is sticking around. Need to also know precipitation forecast, with rolling 30-day lead-time.
George Adrian (City of San Diego): Need to know by April to May, about temperature for June-September, which could influence how much water to hold for summer. For 2020 planning, need to know about spatial ET, as input for demand forecasts.

From January 20, 2012 meeting:
Jeanine Jones, Mike Anderson (California Department of Water Resources) need: better hydrology (monthly, watershed scale), information on water transfers (receivers, purveyors of water); decisions: what's needed to change allocations, releases, purchases?
George Adrian (City of San Diego Water Department) need: forecasts 6-9 months in advance; information on extreme events; before budget year of July 1; decisions: winter-whether to buy more water, not deplete reservoirs; water purchasing decisions; demand management.
Roy Herndon (Orange County Water District) need: 2-3 months ahead, precipitation; decisions: what should the pumping allocation be? do you feel comfortable draining reservoirs?
Tim Brick (Metropolitan Water District) need: precipitation, SoCal member agencies; decisions: are we going to make water available for groundwater replenishment?
Sandy Kerl (San Diego County Water Authority) need: 6-9 months ahead, spring precipitation; MWD drought risk; decisions: preparing for July 1 year; make sure we have enough supply; sales availability for fiscal year.

Drought Early Warning Information System for Southern California

National Integrated Drought Information System (NIDIS) Pilot Activity

Wednesday, September 5, 2012
Spiess Hall Room 330
Scripps Institution of Oceanography, San Diego, CA
8:00 a.m. - 4:00 p.m.

Specialized Application
MEETING NOTES

The focus of this working group meeting was on the development of specialized applications for decision-makers. While the previous day focused on providing a suite of information, this day examined specific decisions that drought information could help to inform and thereby reduce impacts and costs (in other words, "If we had this type of information, that would help us with this type of decision, and potentially save this much money in this way"). The specification included the decision-maker, decision, information needed (e.g., variable, time scale, spatial scale, lead time, accuracy, format, lead time), and potential value of information.

(1) George Adrian – City of San Diego
Need:
precipitation forecast
6-9 months in advance
before July 1st (budget year)
precipitation over City of San Diego
precipitation for winter months – November through April
Type of decision:
how much have to purchase
if know it's going to be a wet year, wouldn't purchase as much
if dry year, set aside more money, buy more
currently using previous year information; not really using forecasts
it would reassure decision;
forecast says wet – business as usual
says dry – reserve more money
City doesn't really have a groundwater recharge option
rolling forecasts could be useful – make minor modifications
need information (at the latest) by September-October
reservoir drawdowns
MWD, SDCWA – continuous purchase decision – can supply water at any time
wet forecast - value of surface water resource – could be millions of dollars – don't want to need water – could bring reservoir levels down more
dry forecast – could buy water at lower rate, store it
forecasts could help confirm a decision – help keep City stay in drought restriction level longer
cannot take risks – for longer term planning
changes in weather patterns would be good to know, too
put in long-term demand forecast
longer term – CIP

(2) Jeanine Jones - CA Department of Water Resources
(a) Need - Two year look-ahead on Colorado River, including Lake Powell
In last 13 water years, 10 have been dry
Colorado resilient to drought, large storage capacity
Political interests come into play
Bureau of Rec does 24-month study –
While CA's risk of shortage is low, there is a risk of shortage to AZ and NV
NV concern about elevation of Lake Mead
Hits a level - triggers a political discussion – and a visit to the Supreme Court (want to avoid) –
Longer look-ahead – which way inflow to Lake Powell is trending (slow to respond)
Get out in front of the politics
Before pressure on other basin states
Indicators for the look-ahead:
Inflow to Lake Powell (about 15% of watershed provides 85% of runoff – above Lake Powell) – looks like sine curve – predictable pattern
(upper basin snowpack)
Rolling one-month forecasts – or – end of water year forecast (Oct)
Also how much in the hole (system storage)
Actions – MWD special credit – storage programs – conservation programs
Dealing with shortages under treaty

(b) On the wet side – encouraging local agencies to develop local resources – stormwater capture
What would be useful – to capture more stormwater rather than letting it run out into the ocean
Forecasting big storm events
Letting agencies know, at the seasonal levels, is this winter one where we'll be expecting to see big storms
Half of annual precipitation in about a week
If agency willing to risk storage criteria – take advantage of opportunity to store locally
Improve local drought preparedness

(c) Statewide water management – level of effort in state drought program
Knowing as we approach Fall season – what's going to be happening for November through April precipitation - statewide
Also help inform state water project allocation
Do we need to ramp up conservation program

(3) Grace Chan– MWD
Forecasts – need it all
Variables: precipitation, temperature, runoff
Spatial: Colorado River Basin, Bay-Delta watershed, local (all of Southern California), eastern Sierras (runoff – for Colorado, Powell and Mead, Bay-Delta – local what our demand will be looking like)
Temporal: decadal – for making resource decisions; one to two years out, for management decisions; seasonal forecasts, rolling forecasts, 6-9 months ahead, decisions about transfers and allocation

Decadal: how aggressive we need to pursue ocean desalination, coming up with incentive programs for member agencies to develop new resources, including conservation
One to two years out: e.g., program with Palo Verde irrigation district; pay farmers to fallow land, one year notice, two year commitment; all of our storage transfer programs involve money
Seasonal forecasts: operational – if we are pretty sure next year is going to be wet, comfortable drawing down more, then know we can fill back up – if going to be dry, and we draw down, then would have to go into allocation – or we could do a balance – a shallow allocation this year, and shallow allocation next year
Right now, just doing historic probabilities – judgment call at what percentile
incorporating climate change – post-processing (subjective)
predicting demand – temperature, ET

(4) Delon Kwan - LADWP
Precipitation – for Eastern Sierra –
Snowpack
October – April
(starting in October)
One-month anomalies
One-month rolling forecasts
Also useful to have Spring temperatures (April-May)
Don't finalize the operation plan until around April
May help for budgeting purposes -
Help to confirm water ops (water releases)– along the way during period October through April
MWD goes to Board – November/December through April – what is your latest forecast for LA Aqueduct – plus other information – influences supply and demand outlook - influences storage decision
Benefit for public messaging, support programs, looking ahead for implementing
Recently adopted 2010 water management plan
Majority coming from conservation
Public messaging, public education – why the City is on this path – meeting future demands
Historical and real-time data also help; forecasts to generate an outlook for decision-makers – to support certain ordinances being in effect, developing new ordinances

(8) Michael Garrod - Sweetwater Authority
Retailer – 30,000 customers –
Budget issue
In March, need to make a decision on how much water to buy from CWA
Could be from zero to $15 million
Need to make a decision from July 1 – June 30
Say that evaporation = runoff
Can't gamble any more than that
What could help us:
We make decisions in January – February – while the rivers are flowing –
so we minimize amount of water that gets lost to aquifer
If we know that an AR is coming – this is when we need to release

Save us $2 million in lost water to aquifer
If I could get this type of information
If we can get some sort of understanding
Wait another two weeks before transfer
Or – there's a blocking high out there – better transfer while the transfer is good – unless we release by February – then we'll need to purchase the water we didn't think we needed to purchase
Go into drought slowly
If we knew more about what the chances are of the next year
Go into stage 2 a little earlier
We need to go into stage 2 because of a, b, and c
Tipping factor – reasons
We go to the Board monthly – November through April
If we knew going into wetter period, start using more of reservoir water
If we knew getting drier, need to conserve – hold onto reservoir water – CWA going to cut water – have a little in the savings account – if we have a reasonable reason to believe we need to do that
Two weeks or a month lead time – precipitation forecast – for the next month
Whether going to be wetter or drier
December – try to transfer
If not, January
nervous about transferring in February (Arroyo toads)
Transfer as soon as river is wet
If it doesn't get wet – weekly basis – looking at each week
If I knew that I could wait on the transfer, could save millions of dollars – avoid loss of water in aquifer – blocking high would shift
Lose $5 million in water to river
17 miles – Loveland to Sweetwater
Would like to know a year out – not going to move water until I have to –
Most every year we would transfer
Blocking high – or Atmospheric River
Predicted a month out
Fall outlook for water year – help communication with water agencies – work with DWR
Prepare for upcoming year